

BERKMAN, N. A. et al., USSR Author's Certificate No 266858

channel; when operating in the interruption analysis mode, the device is connected to a channel through which a measurement frequency signal is transmitted. A. K.

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UDC 612.833.81+612.273.2

SOKOLOV, Ye. N., and STEKLOVA, R. P., Moscow State University imeni M. V. Lomonosov and All Union Scientific Research Institute of Physical Culture

"Conditioned Reflex to Time and Its Behavior During Hypoxia"

Moscow, Zhurnal Vysshey Nervnoy Deyatel'nosti, Vol. 20, No. 6, 1970, pp 1,123--1,130

Abstract: The purpose of the study was to compare motor conditioned reflexes and EEG reactions in human subjects subjected to acute hypoxia (in a pressure chamber). The subjects were required to make a fist in response to each change in the frequency of light flashes in order to determine the accuracy of discrimination of the intervals between the flashes at different stages of hypoxia. With increasing simulated altitude in the pressure chamber, brain bioelectrical activity changed markedly. The amplitude of the alpha-waves increased but the dominating frequency decreased. The number of theta and delta oscillations increased, especially in the anterior portions of the brain at 5,000 to 6,000 m. The dominance of the theta and delta waves in the frontal and parietal regions coincided with a decrease in the accuracy with which the intervals between light flashes were discriminated. The recruiting response also deteriorated. However, the movements involved in

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SOKOLOV, Ye. N., and STEKLOVA, R. P., Zhurnal Vyshey Nervnoy Deyatel'nosti
Vol 20, No 6, 1970, pp 1,123-1,130

simple tracking of the signal were not significantly affected. The development of the slow rhythms in hypoxia is thought to result from a block of the corticopetal influences of the activating reticular formation.

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1/2 024 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--PHYSICOCHEMICAL AND BIOLOGICAL PROPERTIES OF SEPARATE FRAGMENTS OF
THE THYREOCALCITONIN MOLECULE -U-
AUTHOR--(C4)--STEKOLNIKOV, L.I., TEPELINA, O.M., ABDUKHARIMOV, A.,
KONGPATSKAYA, V.M.
COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(2), 476-9, BIOCHEM

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--THYROID HORMONE, HYDROLYSIS, FRACTIONATION, CALCIUM COMPOUND,
METABOLISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1488

STEP NO--UR/0020/70/191/002/0476/0479

CIRC ACCESSION NO--AT0156417

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0130417

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOUR POLYPEPTIDE FRAGMENTS OF BOVINE THYROCALCITONIN, OBTAINED BY ACID HYDROLYSIS, WERE ASSAYED FOR HYPOCALCEMIC ACTIVITY ON RATS. THE MOST ACTIVE FRAGMENT CONTAINED A REGION IN WHICH ALANINE, TYROSINE, AND TRYPTOPHAN RESIDUES OCCURRED CONSECUTIVELY. SWINE THYROCALCITONIN ALSO CONTAINS A REGION WITH THIS SEQUENCE, INDICATING THAT THIS MAY BE THE ACTIVE SITE OF THE HORMONE.
FACILITY: VSES. NAUCH.-ISSLED. INST. ANTIBIOT., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 612.441.018:(612.126.41+612.126.18)

STEKOL'NIKOV, L.I., TEPELINA, O.M., ABDUKARIMOV, A., and KONOPATSKAYA, V.M.,
All Union Scientific Research Institute of Antibiotics, and Institute of
Higher Nervous Activity and Neurophysiology, Academy of Sciences, USSR.

"The Physical Chemical and Biological Properties of Separate Fragments of
Thyrocalcitonin Molecules"

Moscow, Doklady Akademii Nauk SSSR, Vol 191, No 2, Mar 70, pp 476-479

Abstract: Because the hypocalcemic function of the recently discovered
thyroid hormone, thyrocalcitonin (TCT), is disputed by some scientists, the
authors obtained bovine TCT, which has a hypocalcemic effect in rats. Elec-
trophoresis of hydrolyzed TCT produced one cathode and three anode fractions.
The fractions were eluted and studied. A solution of fraction two was defi-
nitely hypocalcemic in rats, fractions one and three only slightly so, and
fraction four negative. This proves that in order to obtain a specific
biological function, it is not necessary to use the entire molecule of the
hormone. Further chromatographic studies of hydrolyzed fractions showed the
amino-acids composition in each: fraction one contained histidine, glutamic
acid, cystine, tryptophan, phenylalanine, and leucine; fraction two threonine,
glutamic acid, alanine, tryptophan, phenylalanine, tyrosine, leucine, and
valine; fraction three, histidine, aspartic acid, serine, arginine, and
alanine; and fraction four, methionine, lysine, histidine, aspartic and glutamic

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STEKOL'NIKOV, I.I., et al, Doklady Akademii Nauk SSSR, Vol 191, No 2, Mar 70,
pp 476-479

acids, and leucine. It is noteworthy that alanine and tryptophan of fragment
two occupy positions 11 and 13 in the polypeptide chain of the TCT molecule.

1/2 025 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--STUDIES ON CHANGES OF HYPOCALCEMIC ACTIVITY OF TYROCALCITONINE
DURING THE INTERACTIONS WITH PROTEINS OF VARIOUS TISSUES -U-
AUTHOR--STEKOLNIKOV, L.I., TEPELINA, O.M., SUMAROKOV, D.O.
COUNTRY OF INFO--USSR
SOURCE--VOPROSY MEDITSINSKOY KHIMII, 1970, VOL 16, NR 2, PP 198-204
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--CALCIUM, PROTEIN, RABBIT, LIVER, KIDNEY, SPLEEN, BRAIN, HEART,
TISSUE PHYSIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FAME--1986/0643 STEP NO--UR/0301/70/016/002/0198/0204
CIRC ACCESSION NO--AP0102629
UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102629

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF HYPOCALCEMIC REACTION IN RABBITS IN RESPONSE TO THE ADMINISTRATION OF TYROCALCITONINE MIXTURES WITH LIVER, KIDNEY, SPLEEN, BRAIN AND HEART HOMOGENATES SHOWS THAT AT THE APPROPRIATE CONDITIONS OF THE EXPERIMENT THE COMPLEXES OF TYROCALCITONINE WITH TISSUE PROTEINS ARE FORMED, LACKING THE ABILITY TO DECREASE CALCIUM LEVEL IN THE BLOOD OF ANIMALS. COMPLEXES ARISING IN BLOOD DURING THE INTERACTION OF TYROCALCITONINE WITH PROTEINS ARE UNSTABLE AND SUFFER RELATIVELY RAPID DECOMPOSITION IN THE BODY WITH HYPOCALCEMIC FACTOR RELEASE. THIS PHENOMENON (TYROCALCITONINEPEXIA) NOT ONLY DEPENDS ON THE SPECIFIC FEATURES OF TISSUES, BUT ALSO ON THE TEMPERATURE CONDITIONS AT WHICH THE INCUBATION OF TYROCALCITONINE WITH TISSUE HOMOGENATES TOOK PLACE.

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USSR

UDC 521.52(CSB.8)

VERIN, B.I., STREL'NIKOV, V.F. [Fiz.-tekh. in-t nizkikh temperatur AN USSR--
Physico-Technical Institute of Low Temperatures, AS, USSR]

"Vacuum Chamber For Investigation Of The Properties Of Materials During Their
Exposure To Ultraviolet Radiation"

USSR Author's Certificate No 258554, filed 3 July 67, published 15 Apr 70 (from
RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11A39F)

Translation: A vacuum chamber is proposed for investigation of the properties of materials during their exposure to ultraviolet radiation. The chamber contains the radiation source, and a sample holder for the materials being investigated is mounted inside the chamber. The chamber differs in the fact that, with the object of the maximum approach of the ultraviolet radiation source to the irradiated objects, the radiation source is introduced inside the chamber and consists of a Laval nozzle feeding gas into the chamber, an electron gun which excites the ultraviolet emission of the gas flow, and a cooled condensor.

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1/2 014 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--SCIENTIFIC RESEARCH CENTER FOR TESTING HIGH VOLTAGE APPARATUS -U-

AUTHOR--(03)-LEVCHENKO, V.T., STEKOLSHCHIKOV, A.A., AGAPOV, S.M.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, ELEKTRICHESKIYE STANTSII, NR 3, MAR 70, PP 78-81

DATE PUBLISHED--MAR70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--CIRCUIT DESIGN, ELECTRIC SWITCH/(U)VVZ12 ELECTRIC SWITCH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REF/FRAME--1988/0814

STEP NO--0R/0104/70/000/003/007B/0001

CIRC ACCESSION NO--AP0105/19

UNCLASSIFIED

2/2 C14

UNCLASSIFIED

PROCESSING DATE--0200T70

CIRC ACCESSION NO--AP0105719

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A TYPE VVZ-12 10 KV (NOMINAL VALUE) PROTECTIVE SWITCH FOR INTERNAL INSTALLATION, PRODUCED BY THE Leningrad Plant "ELEKTROAPPARAT", IS PART OF THE ELECTRICAL CIRCUIT OF THE SCIENTIFIC RESEARCH CENTER FOR TESTING HIGH VOLTAGE APPARATUS. IT IS USED AS A PROTECTIVE SWITCH DURING THE TESTS. THE SWITCH IS A COMPLEX OF THREE SEPARATE POLES AND TYPE SHRPF-3 DISTRIBUTION HEADS CONNECTED PNEUMATICALLY IN A SINGLE UNIT. MODERNIZATION OF THE VVZ-12 SWITCH ELIMINATED DEFECTS DEVELOPED IN OPERATION, INCREASED THE RELIABILITY OF OPERATION, THE USEFUL LIFE, AND THE ECONOMY OF OPERATION. THE AIR BLAST VALVE AND THE BASIC ARC QUENCHING CHAMBER UNDERWENT MODERNIZATION. THE PROCESS OF MODERNIZATION IS DISCUSSED IN DETAIL AND IS ILLUSTRATED WITH FOUR DETAILED DRAWINGS KEYED TO THE EXPLANATION.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--RECOVERY OF A TRAP PRODUCT ON THERMAL CRACKING APPARATUS -U-
AUTHOR-(03)-VARFOLOMEYEV, D.F., URAZAYEV, F.KH., STEKOLSHCHIKOV, M.N.
COUNTRY OF INFO--USSR
SOURCE--NEFTEPERERAB, NEFTEKHIM, (MOSCOW) 1970, (5), 7-8
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, PROPULSION AND FUELS
TOPIC TAGS--THERMAL CRACKING, LIQUID FUEL
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--3005/1950 STEP NO--UR/0318/70/000/005/0007/0008
CIRC ACCESSION NO--AP0133794
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133794

ABSTRACT/EXTRACT--(U) GP-C- ABSTRACT. A TRAP MATERIAL CONTG. GREATER THAN OR EQUAL TO 20PERCENT WATER WAS HEATED TO 140-50DEGREES AND MIXED WITH OVERFLOW FROM A HIGH PRESSURE EVAPG. COLUMN AND THEN WITH CRACKING RESIDUE IN THE LOW PRESSURE EVAPORATOR. THE THROUGHPUT OF THE PLANT REMAINED CONST., GIVING STD. FUEL FROM THE CRACKING RESIDUE.
FACILITY: UFIMSK. NPZ, USSR.

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USSR

STEKOL'SHCHIKOV, Ye. V., FEDOROV, A. S., Teploenergetika, No. 7, Jul 72,
pp 83-85

gas-liquid medium t , the probability density of the distribution of a volume of the gas phase in terms of bubble diameters (from photographic studies of the medium), the average volume concentration of gas within the interferometer ϕ , the coordinate of the microphone z , the amplitude of the pressure of the fluctuating standing sound wave A at points $z = \text{const}$ as a function of the time τ , and the frequency of the monochromatic sound radiation f . The relative error of measurement of these parameters did not exceed the following: temperature 0.5%, smallest diameters of bubbles 20%, greatest diameters 6%, average gas concentration ϕ 7%, z -coordinates 0.3%, generator frequencies f 0.1% and amplitude of the standing wave A 1%. The mean-square deviation of the amplitude in many cases exceeded 50% of its mathematical expectation, indicating the considerable dimensions of fluctuations in the amplitude of the acoustical pressure. Fluctuations in the amplitude of the pressure at the point $z = \text{const}$ are attributed to the following reasons: nonuniform yield of bubbles from the bubble device leads to amplitude-phase modulation of the incident and reflected sound waves; continuous replacement of bubbles in the zone near the microphone and the emitter effect the stability of their acoustical

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ARO 022438

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JPRS 49346

(Abstract: "Variability of Tropopause Characteristics," by F. N. ~~Stelmakh~~
Moscow, Trudy Nauchno-Issledovatel'skogo Instituta Aeroklimatologii No. 47,
1969, pp. 33-39)

From: Moscow, Referativnyy Zhurnal, Geofizika, Svednyy Tom, No. 8, 1969,
8B467

Variability of Tropopause Parameters

Data from aerological observations at USSR stations for a 15-year period have been used in computing and mapping the standard deviation of altitude (σ_H) and temperature of the lower boundary of the tropopause (σ_t) for the territory of the USSR. It is shown that in January the maximum variability in tropopause altitude and temperature ($\sigma_H > 1.5$ km, $\sigma_t > 1^\circ$) occurs in regions with the best-developed cyclonic activity. In July the field of standard deviation of the principal characteristics of the tropopause differs substantially from January. A great variability of the tropopause altitude and temperature ($\sigma_H > 3$ km, $\sigma_t > 10^\circ$) is observed in the southern regions of the Soviet Union (about 40° N), where in summer the recurrence of a

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multilayer tropopause is great. The replacement of a single-layer tropical tropopause by a polar tropopause, entering into a multilayer tropopause and the reverse transition from a polar to a tropical tropopause, leads to a great variability tropopause altitude and temperature. To the south of 40° N, where the predominating tropopause is a single layer tropical tropopause, the mean square (standard) deviation of its altitude and temperature decreases. Bibliography of 11 items.

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19630707

Powder Metallurgy

USSR

UDC 621.791.75.001:537.523.5

STEL'MAKH, G. P., CHESNOKOV, N. A., POGORELOV, V. F., and
SHCHERBAKOV, S. A., Moscow

"Change in Properties of Dispersed Aluminum Oxide During the
Process of Plasma Spheroidization"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 2, Mar-Apr 71,
pp 133-137

Abstract: A study was made of the influence of the initial particle size on the formation of the α , κ , and λ modifications in the process of plasma spheroidization of dispersed aluminum oxide. As a result of processing of the aluminum oxide in an argon plasma, the quantity of volatile impurities in the spheroidized particles was decreased, while the particle dimensions changed only slightly.

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Powder Metallurgy

USSR

UDC 621.791.75.001:537.523.5

STEL'MAKH, G. P., CHESNOKOV, N. A., POGORELOV, V. F., and
SHCHERBAKOV, S. A., Moscow

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Process of Plasma Spheroidization"

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pp 133-137

Abstract: A study was made of the influence of the initial
particle size on the formation of the α , κ , and λ modifica-
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aluminum oxide. As a result of processing of the aluminum oxide
in an argon plasma, the quantity of volatile impurities in the
spheroidized particles was decreased, while the particle di-
mensions changed only slightly.

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172 041
UNCLASSIFIED
TITLE--GENERALIZATION OF THE OPERATIONAL CHARACTERISTICS OF A SECTIONAL
PLASMATRON WITH COMPRESSED CHANNELS -U-
AUTHOR--(04)-KOSARENKOV, V.A., RYABTSEV, YE.I., STELMAKH, G.P., CHESNOKOV,
N.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. MEKH. TEKH. FIZ.; NO. 1, 115-8 (JAN-FEB 1970)
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--PLASMA ACCELERATOR, VOLT AMPERE CHARACTERISTIC, PLASMA JET,
FLOW VELOCITY, PLASMATRON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0214
CIRC ACCESSION NO--AP0127825
STEP NO--UR/0207/70/000/001/0115/0118
UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0127825

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VOLT AMPERE CHARACTERISTICS OF A SECTIONED CHANNEL PLASMATRON WERE DETERMINED AT REDUCED PRESSURES. THE VELOCITY OF THE JET MAY BE INCREASED BY INCREASING THE GAS CONSUMPTION, REDUCING THE PRESSURE, AND IMPROVING THE NOZZLE DESIGN. THE JET DIAPHRAGM PLASMATRON STUDIED CONSISTED OF 6 SECTIONS WITH 20 MM DIAMETER AND 20 MM HIGH CHANNELS. THE 4, 8, 12 OR 16 MM NOZZLE WAS ATTACHED AT THE ANODE SECTION; THE ARGON CONSUMPTION WAS VARIED FROM 0.2 TO 3.5 G-SEC. THE EXPERIMENTAL PRESSURE RANGED FROM 1.33 TIMES 10 PRIME2 TO 1.33 TIMES 10 PRIME3 N-M PRIME2, UPON COMPRESSION IN THE CHANNELS, IT VARIED FROM 1.33 TIMES 10 PRIME3 TO 1.33 TIMES 10 PRIME5 N-M PRIME2. THE ENTHALPY OF THE JET WAS CALCULATED FROM THE THERMAL BALANCE OF THE SYSTEM. THE DATA OBTAINED WERE COMPARED WITH GENERALIZED CRITERIAL RELATIONS. THE FOLLOWING CORRELATION WAS OBTAINED: $U \text{ EQUALS } 1.91 I \text{ PRIME NEGATIVE } 0.1 K \text{ PRIME NEGATIVE } 1.0 D \text{ PRIME NEGATIVE } 1.3$, WHEN I IS SMALLER THAN 1, K IS SMALLER THAN 5, D IS SMALLER THAN 10, AND L IS SMALLER THAN 5, WHEREBY U WAS DERIVED FROM OHM'S LAW, I FROM THE ENERGY EQUATION AND D REPRESENTS THE RATIO OF THE DIAMETERS OF THE CHANNEL AND THE NOZZLE. UNDER CERTAIN CONDITIONS THE RELATIONSHIP BECOMES $U \text{ EQUALS } 0.6 I \text{ PRIME NEGATIVE } 0.2 K \text{ PRIME NEGATIVE } 1.0 D \text{ PRIME NEGATIVE } 1.3 L \text{ PRIME } 0.65$, WHEN I IS SMALLER THAN 1, K IS SMALLER THAN 11.0, WHEREBY L IS A GEOMETRIC FACTOR. THE FORMULA ALLOWS ESTIMATION OF THE OPERATIONAL CHARACTERISTICS OF PLASMATRONS.

UNCLASSIFIED

1/2- 061 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--CLARIFICATION AND DISINTEGRATION OF GASEOUS BORON TRICHLORIDE (BCL
SUB3) BY RADIATION OF A CO SUB2 LASER -U-
AUTHOR-(05)-ARAKELIAN, V.S., KARLOV, N.V., KUZMIN, N.V., PETROV, YU.N.,
STELMAKH, O.M.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, RADIOTEKHNIKA I ELEKTRONIKA, NO 3, MAR 70, PP 634-635
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--LASER EXCITATION, CARBON DIOXIDE LASER, BORON FLUORIDE,
ABSORPTION COEFFICIENT, RESONANCE ABSORPTION, GAS DISSOCIATION, GAS
PRESSURE, RADIATION INTENSITY/(U)IKS21 SPECTROPHOTOMETER
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/1461 STEP NO--UR/0109/70/000/003/0634/0635
CIRC ACCESSION NO--AP0104757
UNCLASSIFIED

2/2 061

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PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0104757

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER DISCUSSES THE RESULTS OF EXPERIMENTS CONCERNED WITH A DETERMINATION OF THE SATURATION FACTOR AND LIFE TIME OF OSCILLATION OF GASEOUS VORON TRICHLORIDE (BCL SUB3) AND ALSO THE DISINTEGRATION OF THE BCL SUB3 PRIME3 MOLECULE BY THE RADIATION OF A CO SUB2 LASER. THE DEPENDENCE OF THE RESONANT ABSORPTION COEFFICIENT ON PRESSURE IS SHOWN. MEASUREMENTS WERE MADE AT ROOM TEMPERATURE IN A VESSEL 10 CM LONG AND 2.8 CM IN DIAMETER WITH THE AID OF A IKS 21 SPECTROMETER. IN THE REGION OF NONHOMOGENEOUS BROADENING EXTENDING AT LEAST TO 5-7 TOR, THE VALUES OF THE ABSORPTION COEFFICIENT AMOUNTED TO ALPHA EQUALS 0.04 CM PRIME-NEGATIVE1 TOR, WHICH CORRESPONDS TO THE ABSORPTION CROSS SECTION SIGMA EQUALS 1.1 TIMES 10 PRIME-NEGATIVE18 CM PRIME2. THE SATURATION ABSORPTION WAS INVESTIGATED WITH THE AID OF A CO SUB2 LASER WITH AN OUTPUT POWER UP TO 100 WATT. THE TWO CHANNEL METHOD WAS USED FOR SIMULTANEOUS MEASUREMENT OF THE RADIATION POWER ENTERING THE VESSEL WITH THE BCL SUB3 AND LEAVING THE VESSEL. THE POWER LEVEL WAS CHANGED BY A GAS ATTENUATOR IN THE BCL SUB3. THE GAS ATTENUATOR MADE IT POSSIBLE TO CHANGE THE INTENSITY OF THE LASER BEAM, NOT CHANGING THE ENERGY DISTRIBUTION IN THE CROSS SECTION OF THE BEAM. CONTROL OF THE ATTENUATOR WAS ACCOMPLISHED BY A CHANGE OF THE GAS PRESSURE. THE AUTHORS THANK A. M. PROKHOROV FOR CONSTANT ATTENTION TO THE WORK AND FRUITFUL DISCUSSIONS, AND ALSO YU. B. KONEV FOR FREQUENT USEFUL DISCUSSIONS.

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Acc. Nr **AP0101688**

Abstracting Service:
CHEMICAL ABST.

6-70

Ref. Code

UR0449

115923g Radiation perturbation in copper-doped gallium arsenide. Papeiko, A. S.; Radovskii, E. E.; Stel'makh, V. P.; Tkachev, V. D. (Beloruss. Gos. Univ., Minsk, USSR). *Fiz. Tekh. Poluprov.* 1970, 4(1), 142-4 (Russ). The effect of radiation with fast reactor neutrons (10^{14} - 3×10^{17} neutrons/cm²) on the properties of GaAs doped with Cu was studied. The single crystals were grown by directed crystn. ($n_0 = 1.2 \times 10^{17}$ /cm³, $\mu = 3300$ cm²/V-sec) and were purified by floating zone melting ($n_0 = 8.5 \times 10^{14}$ /cm³, $\mu = 4400$ cm²/V-sec). Diffusion of Cu was carried out at 800° from electro-deposited surface layers under equil. pressure of As vapor. The exptl. and theoretical curves for the electron concns. in the original GaAs specimens, subjected to floating zone melting, as a function of temp., indicated the presence of 2 main donor levels. Photocond. measurements showed the deep level to be at $E_c - 0.25$ eV. This level may well be assocd. with inherent structural lattice defects arising during floating zone melting. After 2 hr diffusion of Cu, low-resistance *p*-type specimens were obtained. The relation between the concn. of holes and the temp. and also the data on photocond. spectra indicate the presence of a basic acceptor level, $E_A = E_V + 0.15$ eV, assocd. with the 1st ionization state of Cu, i.e. Cu⁺. After irradiation of such specimens at 10^{14} neutrons/cm² the photocond. spectra exhibited the levels $E_c - 0.14$, $E_c - 0.4$, $E_c - 0.67$, $E_c - 0.75$, $E_c + 0.4$, $E_c + 0.3$, $E_c + 0.2$, and $E_c + 0.15$ eV, assocd. with residual and radiation-induced disturbances of the structure. The relation between

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the hole concn. and the temp. indicates the high degree of compensation of the Cu - acceptor. ($E_v + 0.15$ eV.) On irradiation of a specimen obtained by directed crystn. at 10^{16} neutrons/cm² under the same conditions as for the above specimens, a transition from *n*-type to *p*-type GaAs is obsd. Another illustration of the conversion of *n*-type GaAs doped with Cu into *p*-type material is given by the change in sp. resistance of specimens of various impurity levels on increasing the neutron flux. This change is probably due to an increase in the concn. of elec. active components in the Cu.

F. N. Standen]

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REEL/FRAME

19851631

USSR

UDC 621.357.8:669.71

SEVERDENKO, V. P., LAJUNOV, V. A., VOROBEY, Z. F., and STEL'MAKH, V. T.

"Evaluation of Parameters for the Plasma Anodizing of Aluminum"

Dokl. AN BSSR (Proceedings of the Academy of Sciences Belorussia SSR), 16, No 11, 1972, pp 995-997 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7L339 by Ye. I. Khrushcheva)

Translation: A study was made of the influence of the location of oxidizable areas -- relative to the plasma and the discharge current -- on the kinetics of the oxidation of Al films and their ultimate thickness. It was shown that in regimes of a fixed voltage of formation and also a fixed surface current an increase in the discharge current leads to an increased maximum thickness of the oxidized layer and the rate of its growth. This effect of the discharge current is explained by the fact that the wall film and the density of the negative ions increase as the discharge current increases. The wall film determines the size of the oxide film (that is, the final thickness), and the negative ion density determines the oxidation and probability of spreading of the developing oxide.

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USSR

UDC 620.198:537.533.35

SEVERDENKO, V. P., Academician of the Belorussian Academy of Sciences; LABUNOV, V. A.; VOROBAY, Z. F.; and STEL'MAKH, V. T.,
Minsk Radio Engineering Institute

"Selecting Parameters for Plasma Anodized Aluminum"

Minsk, Doklady Akademii Nauk BSSR, vol 16, No 11, 1972, pp 995-997

Abstract: This paper is based on an earlier article (V. P. Severdenko, et al, DAN BSSR, vol 16, No 8, 1972) in which it was shown that the process of plasma anodizing of aluminum is determined to a large extent by the oxygen pressure in the vacuum chamber. The purpose of the present paper is to investigate other factors affecting this process, such as the position of the oxidized specimen relative to the plasma and the discharge current, which affects the kinetics of the aluminum film oxidation and the final thickness of the film. The experimental apparatus used to make these determinations is the same as that used in the earlier article, and the experimental method is described. Curves are obtained for the formation current and oxide thickness as functions of time, for various values of discharge current, and for the formation voltage

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SEVERDENKO, V. F., et al, Doklady Akademii Nauk SSSR, vol 16,
No 11, 1972, pp 995-997

and oxide thickness as functions of the time. Comparison of the curves shows that with constant formation current density, an increase in the discharge current leads to an increase in the maximum oxide thickness and its growth rate.

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1/2 017
TITLE--EXPERIMENTAL USE OF THE RADIOISOTOPIC FOLLOW UP LEVEL GAGE UDAR-5
-U-
AUTHOR-(03)-STELMASHENKO, O.N., LITVINENKO, V.V.A., SHEVCHUK, N.A.
COUNTRY OF INFO--USSR
SOURCE--KHIM. PROM. UKR. 1970, (1), 54-5
DATE PUBLISHED-----70
SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, METHODS AND EQUIPMENT
TOPIC TAGS--LIQUID LEVEL INSTRUMENT, RADIATION SOURCE, GAMMA RAY
ABSORPTION, GAMMA DETECTOR/(U)UDARS LEVEL GAGE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/1901
CIRC ACCESSION NO--AP0108231
STEP NO--UR/0436/70/000/001/0054/0055
UNCLASSIFIED

2/2 017

CIRC ACCESSION NO--AP0108231

UNCLASSIFIED

PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CONTINUOUS, AUTOMATIC, CONTACTLESS MEASUREMENT AND CONTROL OF LEVELS IN LIQS. AND FREE FLOWING SOLIDS WITH AN ERROR OF PLUS OR MINUS 2 MM AND WITHOUT RISK OF FIRES AND EXPLOSIONS WAS ACHIEVED BY MEASURING DIFFERENCES IN GAMMA RAY ABSORPTION WITH THE AID OF THE LEVEL GAGE UDAR-5 WHICH HOUSED A LOW ACTIVITY GAMMA RAY SOURCE ON ONE BRANCH AND A RADIATION SENSITIVE ELEMENT ON THE OTHER BRANCH OF A VERTICAL MOVING BELT PERFORATED TO MESH WITH THE TEETH OF A SINGLE SERVO DRIVE SYSTEM.

UNCLASSIFIED

USSR

UDC 621.438-226.1.001.24.539.319

STEL'MASHUK, V. N., and KAMINSKIY, A. M.

"Estimation of the Adaptability of Turbine Blades"

Kiev, Problemy Prochnosti, No 1, Jan 72, pp 17-21

Abstract: An attempt is undertaken to evaluate the efficiency of turbine blades produced from plastics, under conditions of nonsteady regimes on the basis of the theory of adaptability. The article deals with the problem of evaluating the adaptability of turbine blades (solid and hollow), under the influence of temperature fields and mechanical loads acting during starting, steady operation, and stopping. On the basis of analytic representation of the shape of the profile and the temperature field, approximate expressions of the stresses in the blade were obtained. It is shown that evaluation of the adaptability is reduced to checking, at the danger point, the sign of the complexes composed of coefficients of the expressions for the stresses and safety characteristics of the material. Two figures, 6 references.

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- 115 -

USSR

UDC: 546.32/34-31'882-31:537.228.1

CHKALOVA, V. V., BONDARENKO, V. S., STEMBER, N. G., STRIZHEVSKAYA, F. N.,
FOKINA, G. O.

"Solid Solutions Based on Alkali Metal Niobates"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, No 6, Jun 73,
pp 987-991.

Abstract: The study of solid solutions based on alkali metal niobates is of interest, since these materials have high piezoelectric properties plus high sound propagation rates, an important factor for practical applications. In this article, primary attention is concentrated on the investigation of trinary solid solutions $(\text{NaLiK})\text{NbO}_3$ and binary solid solutions $(\text{NaLi})\text{NbO}_3$. The solid solutions based on alkali metals were produced using the carbonate salts Na_2CO_3 , K_2CO_3 , Li_2CO_3 and niobium pentoxide. Some of the dielectric, piezoelectric and elastic properties of the binary and trinary solid solutions were studied. The studies showed that in the system $(\text{NaLi})\text{NbO}_3$, solutions with two and three mol. % LiNbO_3 have the maximum piezoelectric and elastic properties. The compositions with the highest sound propagation velocities, lowest dielectric

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USSR

Chkalova, V. V., Bondarenko, V. S., Stember, N. G., Strizhevskaya, F. N.,
Fokina, G. O., Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Mater-
ialy, No 6, Jun 73, pp 987.991.

constants and highest piezoelectric properties are determined. These materials
are most promising for use in high frequency ultra-acoustics. The solid solu-
tions studied have good temperature stability and a broad range of working
temperatures.

1/2 029
TITLE--ARGON ARC WELDING -U- UNCLASSIFIED S PROCESSING DATE--04DEC70
AUTHOR--(104)--LEBEDEV, V.K., PENTEGOV, I.V., STEMKOVSKIY, YE.P., SIDORENKO,
M.N.
COUNTRY OF INFO--USSR
SOURCE--U.S.S.R. 248115
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI BUL
DATE PUBLISHED--05JAN70
SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR., MECH., IND., CIVIL AND
MARINE ENGR
TOPIC TAGS--INERT GAS ARC WELDING, WELDING EQUIPMENT, POWER SUPPLY,
THYRISTOR, ELECTRIC TRANSFORMER, ELECTRIC CAPACITOR, PATENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1047
CIRC ACCESSION NO--AA0131601
STEP NO--UR/04B2/TQ/000/000/0000/0000
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AA0131601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MICROFICHE OF ABSTRACT CONTAINS GRAPHIC INFORMATION. ARGON ARC WELDING WITH POWER TRANSFORMER, VARIABLE CHOKE AND A BATTERY OF CAPACITORS ALL IN SERIES WITH THE WELDING ARC, IMPROVES WELDING BY INTRODUCING A CONTROLLED D.C. CURRENT COMPONENT INTO THE WELDING CIRCUIT WITHOUT MAGNETIC BIAS OF THE POWER TRANSFORMER, AN EXTRA SECONDARY WINDING IS APPLIED TO THE TRANSFORMER. THIS WINDING FORMS, IN CONJUNCTION WITH THE SATURATION CHOKE AND THE RECTIFIER, A D.C. SOURCE WITH A SHARPLY DRIPPING CHARACTERISTIC AND CONNECTED TO THE ARC GAP VIA AN L SHAPED FILTER. PARALLEL TO THE CAPACITOR BATTERY ARE PLACED A THYRISTOR AND A RESISTOR WHICH PROTECT THE CAPACITORS FROM OVERVOLTAGE WHEN THE ARC IS BROKEN. THE CONTROLLING ELECTRODE OF THE THYRISTOR IS CONNECTED TO ITS ANODE VIA A RESISTOR, A VOLTAGE STABILISER AND UNCONTROLLED DIODE, ALL IN SERIES.
FACILITY: INSTITUT ELEKTROSVARKI IM YE. O. PATOMA.

UNCLASSIFIED

Pathology

USSR

UDC 616.931-07:616.852-018.82-02:576.852.23.097.29

MIKHAYLOV, V. V. and STENKOVSKIY, A. D., Chair of Pathological Physiology imeni Acad. A. A. Bogomolets, Saratov Medical Institute

"State of Interneurons and Motor Neurons During Diphtheria Intoxication"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1971, pp 67-69

Abstract: Changes in background and evoked activity of spinal cord neurons were investigated in cats and guinea pigs injected with diphtheria toxin. Only the background activity of the interneurons was depressed by the ensuing diphtheria. This did not occur in postdiphtheria polynouritis, when most of the toxin is already eliminated and the allergic demyelinizing process is the main factor. In another series of experiments, the same parameters of electrical activity were investigated in medullectomized animals. Both the background and evoked activity of the interneurons remained essentially unchanged even at the peak of inhibition of epinephrine synthesis 6 days after the

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USSR

MIKHAYLOV, V. V. and STENPKOVSKIY, A. D., Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 1, 1971, pp 67-69

operation. Injection of the medullectomized animals with epinephrine likewise had no effect. Thus, despite the impairment of mediator metabolism in diphtheria, catecholamines do not play a specific part in the mechanisms responsible for the disruption of electrical activity of interneurons.

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UDC 632.95

USSR

STEMPKOVSKAYA, L. A.

"Colorimetric Express Method of Analyzing DDT in Root Crops and Tubers"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov profilakt. zapryaz-
neniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-
Union Conference on the Investigation of Pesticide Residues and Preventive
Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp
313-315 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N435)

Translation: A 25 gram sample of the investigated product is ground and agitated for 30-40 minutes with 25-50 ml of petroleum ether (boiling point 40-60°) or n-hexane; the extract is evaporated, and 2 ml of a cooled nitrating mixture (10 grams KNO_3 in 100 ml of concentrated H_2SO_4) is added. The mass is mixed and heated for 15-20 minutes in a boiling water bath; after cooling, 5 ml of ice water is added, and extracted with 4 ml of C_6H_6 , the extract is dried over Na_2SO_4 , evaporated and 1-2 drops of KOH solution in alcohol is added. The appearance of a light blue color indicates the presence of DDT in the sample. To the solution, 5 ml of C_6H_6 and 2 ml of KOH solution in ethanol are added, and the optical density is measured on a photoelectric colorimeter with a green light filter.

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1/2 010 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--BENZOYLATION OF P,BENZOYLANISOLE -U-
AUTHOR-(03)-TSUKERVANIK, I.P., SIDOROVA, N.G., STENPNEVSKAYA, I.A.
COUNTRY OF INFO--USSR
SOURCE--ZH. DRG. KHIM. 1970 6(3) 535-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ANISOLE, BENZENE DERIVATIVE, BENZOYL CHLORIDE, CHEMICAL
SYNTHESIS, FORMALDEHYDE, OXIDATION, CHROMIUM OXIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REFL/FRAME--1992/1536 STEP NO--UR/0366/70/005/003/0535/0536
CIRC ACCESSION NO--AP0112530
UNCLASSIFIED

272 010

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0112530

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE HEATING OF P-MEDC SUB6 H SUB4
3Z (I) WITH BZCL AND POWD. FE AT 220-40DEGREES GAVE 86PERCENT 2,4-BZ
SUB2 C SUB6 H SUB3 OME (II). THE STRUCTURE OF II WAS PROVEN BY THE
FOLLOWING SYNTHESIS: I TREATED WITH HCHO IN THE PRESENCE OF HCl AND
ZNCL SUB2 GAVE 1,2-(MED)CLCH SUB2 C SUB6 H SUB3 BZ WHICH WAS REACTED
WITH C SUB5 H SUB6 IN THE PRESENCE OF ALCL SUB3 TO GIVE 1,2-(MED)PHCH
SUB2 C SUB6 H SUB3 BZ (III). THE OXIDN. OF III WITH A CRD SUB3-ACCH
MIXT. GAVE II.

UNCLASSIFIED

USSR

UDC 621.791.011:546.821:546.833

BLASHCHUK, V. YE., GUREVICH, S.M., ZOTOVA, L.M., LANGER, N.A., GRINEVICH, V.V.,
and STURDER, N. V., Kiev

"Weldability and Corrosion Resistance of an Alloy of Titanium With 5% Ta"

Kiev, Avtomaticheskaya Svarka, No 6, Jun 71, pp 16-18

Abstract: Development of new chemical products, particularly those in which the basic component of the medium is hydrochloric acid, and introduction of rational technological processes requires the use of new corrosion-resistant structural materials. One of these is titanium and its alloys. An alloy of the system titanium - 5% tantalum with a stable alpha-solid solution has been designated for use in hydrochloric acid in the presence of oxidizers at an elevated temperature. Production of this alloy has been mastered and designated alloy grade 4204. The corrosion resistance of alloys 4204, VT1, and OT4 and their weld joints was studied in 10% HCl at 90°C and with a continuous flow of chlorine gas at the rate of 70 ml/min. It was found that alloy 4204 possesses higher corrosion stability than alloys OT4 and VT1. 4 figures, 1 table, 7 bibliographical references.

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1/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ELECTROPLATING TITANIUM PRIOR TO SOLDERING -U-
AUTHOR-(02)-BONDAREV, V.V., STENDER, V.V.
COUNTRY OF INFO--USSR
SOURCE--TR., GOS. NAUCH.-ISSLED. PROEKT. INST. SPLAVOV OBRAB. TSVET. METAL
1970, NO. 31, 105-13
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--TITANIUM, TITANIUM ALLOY, COPPER, METAL COATING,
ELECTROPLATING, METAL SOLDERING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/0589 STEP NO--UR/0000/70/000/031/0105/0113
CIRC ACCESSION NO--AT0134354
UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AT0134354
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRIOR TO SOLDERING TI OR TI ALLOYS
WITH LOW MELTING SOLDERS OR SOLDERS MELTING AT 400-600DEGREES, THEY
SHOULD BE ELECTROPLATED WITH CU 10-15 MU THICK, AND THE CU-PLATED TI
SHOULD BE SUBSEQUENTLY TREATED FOR 20-30 MIN AT 780-810DEGREES IN VACUO.

UNCLASSIFIED

USSR

UDC: 621.315.592

3

MOLIN, V. N., VASIL, O. I., SKRIPKINA, P. A., ASEYEV, A. L.,
PETROSYAN, V. I., STENIN, S. I., and TAVGER, B. A., Institute of
Semiconductor Physics, Novosibirsk

"Connections of the Electrophysical Characteristics and Structure
of Dimension-Quantized InSb Films"

Leningrad, Fizika i tekhnika poluprovodnikov, No 8, 1972, pp 1447-
1451

Abstract: The purpose of this paper is to establish a connection between the structure and the electrical characteristics of InSb films with quantum dimensional effects. In the form of wedges, the specimens were prepared by pulse sputtering in a vacuum of 10^{-5} mm Hg on mica sheets measuring 10X80 mm. The specimens were given two types of structure by two modes of annealing. A photograph of these structures is reproduced, and curves are plotted for the mobility as a function of the thickness of the InSb films for the two structural types and for nonstoichiometric films with excess Sb, for the mobility as a function of the polycrystalline film temperature and the textured film temperature. The authors express their gratitude to E. I. Dagman and L. M. Rodnikova for their assistance.

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SPRS 53308
6-73

XVI-7. GROWTH MECHANISMS AND THE EVOLUTION OF DEFECTS IN THIN EPITAXIAL SILICON FILMS BY THE LOW DEPOSITION METHOD

[Article by O. F. Pchelnyakov, R. N. Loyagin, A. I. Ieremeyev, Ye. A. Litvinov, A. Alexandrov, S. I. Stenin, Novokubinskii Novokubinskii, III Sibirskii po Prirodoznaniiu i Shirokii Poluprovodnikovii Kristalloi i Pribor. Russian. 12-17 June 1972. p 220]

The methods of highly resolving replica and electron microscopy by small illumination were used to study the surface structure of silicon in the presence of thermal etching of it in an ultra-high vacuum and the growth mechanism of the epitaxial film. It is demonstrated that after etching, macro- and microdefects are formed on the substrate surface. During the film growth process, utilization of these stages is observed.

A study was made of the types of defects and their distribution in the film with respect to thickness. The interrelation was established between the configuration of the developed growth surface and the location of the defects formed. On the growth surface reactions take place which lead to the appearance of coherent interstitial separations with increased carbon concentration and subsequent conversion of these into epitaxial layers of silicon carbide.

Theoretical estimates were made of the epitaxial growth parameters and the elastic stresses arising during transformation of the coherent separations into carbide particles.

STENIN, S.I.

STENIN, S. I.

JPAS 69008
Co-73

XVI-4. DYNAMICS OF CONDENSATION AND STRUCTURAL TRANSFORMATION OF THIN INSB FILMS

(Article by P. A. Skripkin, O. I. Vasin, V. L. Petukhova, S. I. Stenin, Novosibirsk, Novosibirsk, 111 Stremel'skaya St., 630090, Novosibirsk, Novosibirsk, 111 Stremel'skaya St., 630090, Novosibirsk, 12-17 June 1977, p 223)

The method of impulsive evaporation and the study of the dynamics of the condensation process of InSb films by continuous measurement of the conductivity and electron diffraction analysis on reflection was developed.

The process parameters such as the vapor dispersion rate ($V = 1/\text{sec}$), the time ($t_d = 0.2-0.8 \text{ sec}$) and the stoichiometric composition with respect to film thickness (30-100) was observed during the deposition process.

The formation of the film structure from amorphous in the initial stages to polycrystalline or texture in the final stage takes place in the condensation process. The final stage depends sharply on the substrate temperature.

The films obtained had electron mobilities from 50 to $(1-3) \cdot 10^3 \text{ cm}^2/\text{V}\cdot\text{sec}$ in the thickness range of $200-2,000 \text{ \AA}$. The correlation of the structural and electrophysical parameters is detected, and it is demonstrated that the scattering of the charge carriers takes place basically on the structural defects -- chains and dislocation boundaries.

STEIN, S.I.

SPRS 134208
6-73

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XV-8. EFFECT OF THE CRYSTALLIZATION CONDITIONS ON THE DISLOCATION STRUCTURE AND PROPERTIES OF HOMOEPITAXIAL LAYERS OF GERMANIUM

Article by Yu. D. Vasilin, H. S. Miasl', V. P. Miasl', L. R. Alexandrov, S. I. Stein, Novosibirsk, Ill. Stepanovskiy Institut Fiziki, Novosibirsk, 12-17 June 1972, p. 217

Experiments were carried out by the iodine transport reaction in a sealed ampoule. The crystallization temperatures of the layers were 500, 550 and 600° C. The initial iodine concentrations defining the supersaturation varied within the limits of 0.1-6.0 milligrams/cm², and the substrate orientation was (111). The crystallographic imperfections arising in epitaxial germanium were studied by x-ray boron topography using asymmetric and symmetric curves.

The variation of the dislocation structure is observed as a function of supersaturation at constant deposition temperature. For small iodine concentrations the dislocations are located in the small ion layer with an increase in supersaturation these dislocations are transformed by sliding into a system of half loops fastened in the film-substrate junction. Closed loops are also detected. A further increase in iodine concentration leads to the disappearance of the dislocations. The variation of the deposition temperature shifts the detected picture along the supersaturation scale. An analysis of the topograms demonstrated that for deposition temperatures of 500 and 550° C in the lower dislocations with the (111) axis perpendicular to the substrate surface predominate, and at 600° C, dislocations.

In this paper the mechanism of the formation of dislocations in the junction and the causes of the evolution of the dislocation structure as a function of supersaturation and temperature are discussed.

593 AS
2-PR5

(b) (5) DPP

Article by A. L. Masev, D. I. Vasil, Yu. N. Golubkov, Ye. A. Privozdov.
S. I. Smolin, V. N. Shumakov, Novosibirsk, Sovetskii, 11. Sotrudnichestvo na
Gigiena i zdravie s SSSR, 1977, p. 280

Mercurium films on silicon nitride substrates were manufactured by condensation in a vacuum of 10^{-4} – 10^{-5} torr. The deposition rate was 10–20 Å/min. The substrate temperature varied in the range of 20–600°C and the substrate orientation was (110). The surface structure of the films and the substrate was estimated by the method of electron diffraction on reflection, and the desorption of the gaseous layers directly adjacent to the film-substrate junction was studied by a transmission electron microscope.

With an increase in the annealing temperature (T_a), the structure is transformed from polycrystalline ($T_a = 320-400^\circ\text{C}$) to microcrystalline ($T_a = 400^\circ\text{C}$). The basic type of defect in the heteroepitaxial semiconducting films was the packing defects located in the inclined (111) planes and the microvoids both with inclined and normal twinning planes (111). The most perfect heteroepitaxy was obtained in the temperature range of $T_a = 500-560^\circ\text{C}$ where the indicated defects are absent. The electron diffraction and electrophysical method demonstrated that up to a temperature of 600°C , no noticeable disorientation of the columnar and/or layer plates. The variations in the defectiveness at $T_a = 400-520$ and $580-600^\circ\text{C}$ agree with the variations in the formation of packing defects and the properties of the heterojunctions.

The mechanisms of the formation of the structure of the heterojunctions of germanium and gallium arsenide during vacuum deposition are analyzed in this paper.

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--COADSORPTION OF METHANOL AND BROMIDE ANIONS ON A PLATINIZED
PLATINUM ELECTRODE -U-
AUTHOR--(03)-PODLOVCHENKO, B.I., KAZARINOV, V.YE., STENIN, V.F.
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(2), 252-6
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ADSORPTION, METHANOL, BROMIDE, PLATINUM ELECTRODE, CARBON
ISOTOPE, CHEMISORPTION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0197 STEP NO--UR/0364/70/006/002/0252/0256
CIRC ACCESSION NO--AP0114583
UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114583

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE PROCESS OF SIMULTANEOUS ADSORPTION OF BR PRIME NEGATIVE AND MEQH ON A PT PLATINIZED ELECTRODE, POLARIZED ANODICALLY, WAS INVESTIGATED. THE POSSIBILITY OF DISLODGING THE CHEMISORBED SUBSTANCE BY BR PRIME NEGATIVE WAS CHECKED BY USING THE TRACER ATOM METHOD (PRIME14 C IN MEQH). A STRONG, PRACTICALLY IRREVERSIBLE BONDING OF THE MEQH CHEMISORPTION PRODUCT WITH THE PT WAS OBSERVED AS WELL AS A MARKED INHIBITION OF THE ADSORPTION PROCESS IN THE PRESENCE OF BR PRIME NEGATIVE. IN THE CASE OF LIMITING COVERAGE OF THE ELECTRODE SURFACE WITH ORG. PARTICLES, THE RATE OF BR PRIME NEGATIVE ANIONS EXCHANGE INCREASED SIGNIFICANTLY, GIVING EVIDENCE OF THE WEAKENING OF THE ANION BOND WITH PT SURFACE IN THE PRESENCE OF CHEMISORBED ORG. PARTICLES. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA. MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 533.697:532.55

STEN'KIN, YE. D., FISHBEYN, B. D.

"Computer Determination of the Total Pressure Restoration Coefficient of a Nonisothermal Gas Flow"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970, No. 45, pp 54-60 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 5, May 72, Abstract No 5.34.13)

Translation: A calculation technique, an algorithm for the solution, and a flow chart are presented for the computer calculation of the total pressure restitution coefficient of a one-dimensional flow moving in a channel with a straight axis under an arbitrary change in the total temperature along the channel. The program compiled makes it possible to solve variational problems to determine the optimal shape of the channel for a given law of heating or to establish an optimal law of heat supply (or heat transfer) for a given geometry or a permissible region of change in the geometry. The program can also determine the magnitude of the limiting heat supply of gas for given boundary conditions. The algorithm of the program can be used in solving similar problems for a nonhomogeneous gas

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USSR

STEN'KIN, YE. D., FISHBEYN, B. D., Tr. Kuybyshev. aviats. in-t, 1970,
No. 45, pp 54-60

flow. Sample calculations are given supporting the considerable dependence
of the total pressure restitution coefficient on boundary conditions.
3 ref. Resume.

2/2

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USSR

UDC 533.697.532.55

STEN'KIN, YE. D., FISHBEYN, B. D.

"Thermal Losses of Total Pressure in a Gas Flow"

Tr. Kuybyshev. aviats. in-t (Works of Kuybyshev Aviation Institute), 1970, No. 45, pp 48-54 (from RZh-Aviatsionnyye i raketnyye dvigateli, No 4, Apr 72, Abstract No 4.34.18)

Translation: Gas flow with heating in axisymmetric channels with variable cross section is considered. Through a theoretical and computational analysis formulas were established for determining thermal losses of total pressure in the gas flow with an error of less than 0.1-0.2%. A numerical analysis was made by which one could determine the correction coefficient for determining losses with an accuracy sufficient for engineering purposes. The formulas can be used in calculating thermal devices in which there is a gas flow.

1/1

USSR

UDC: 621.382.32:621.372.6

STENIN, V. Ya.

"Equivalent Circuit of a Field-Effect Transistor for a Strong Signal"

Moscow, Radiotekhnika, No 2, 1972, pp 104-106

Abstract: Defining the field-effect transistor as a transistor with a p-n junction, with a Schottky barrier, or with an MOS structure, the author develops an equivalent circuit of the device. Although he indicates that his approach differs from that offered by B. D. Wedlock (Proc. IEEE, 58, No 4, 1970) -- his definitions of the current controlling the potential difference between the gate and the source, and the current controlling the potential difference between the gate and the drain, are not the same as Wedlock's -- he arrives at the same diagram. The diagram is reproduced. Also reproduced is a variant which can be used to analyze the transistor employed for calculations in an electronic computer.

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UDC 621.375.013.756

USSR

STENIN, V.YA. (Member, Scientific-Technical Society Of Radio Engineering,
Electronics, And Communication imeni A.S. Popov)

"Cascode Amplifier Based On Metal-Insulator-Semiconductor Type Transistors With
Series Feedback With Respect To Current"

Radiotekhnika, Vol 27, No 3, Mar 1972, pp 81-87

Abstract: Use of feedback in a pulse amplifier cascode based on metal-insulator-semiconductor type transistors and the possibility of electrical control of the correcting elements of the feedback are considered. A low-signal amplifier based on transistors with induced channels of p type, accomplished on a common semiconductor substrate is investigated. (Six transistors form a number of cascodes.) 4 fig. 7 ref. Received 4 Jan 70; after further improvement 28 Sept 70.

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1/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70
TITLE--SURGICAL AND COMBINED TREATMENT OF EPIBULAR MELANOBLASTOMAS -U-

AUTHOR--(02)-STENKO, Z.L., GNETOVA, O.YE.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK OFTAL'MOLOGII, 1970, NR 2, PP 85-90

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SURGERY, TUMOR, EYE, MEDICAL NUCLEAR APPLICATION, NEOPLASM,
METASTASIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1986/0695

STEP NO--UR/0357/70/000/002/0085/0090

CIRC ACCESSION NO--AP0102679

UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--020CT70

CIRC ACCESSION NO--AP0102679

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IMMEDIATE AND LATE RESULTS FOLLOWING TREATMENT OF 63 PATIENTS WITH EPIBULBAR MELANOBLASTOMAS ARE REPORTED. LOCAL EXCISION OF THE TUMOUR WAS DONE IN 56 AND EXENTERATION OF THE ORBIT IN 7 CASES. IN 16 PATIENTS SURGERY WAS APPLIED IN CONJUNCTION WITH RADIATION (BETA THERAPY, X RAY TREATMENT, TELEGAMMATHERAPY) TREATMENT. THE TECHNIQUE OF LOCAL EXCISION OF THE TUMOUR WITH MANDATORY USE OF DIATHERMOCOAGULATION IS DESCRIBED. THE LATTER IS WELL TOLERATED BY THE EYE AND LEAVES BUT SMOOTH CICATRICES ON THE CONJUNCTIVA AND CORNEA. NO SERIOUS COMPLICATIONS IN THE POSTOPERATIVE PERIOD ARE ON RECORD. TUMOUR RECURRENCES DEVELOPED IN 8 CASES, WITH REPEATED LOCAL EXCISION UNDERTAKEN IN 5 OF THEM. FOLLOW UP PERIODS VARY FROM 1 TO 14 YEARS, WITH 29 PATIENTS TRACED OVER MORE THAN 5 YEARS. DEATH DUE TO THE LOCAL SPREAD OF THE NEOPLASTIC PROCESS AND TO METASTASES OCCURRED TO 5 PATIENTS. FROM THOSE ALIVE 4 PATIENTS EXHIBIT METASTASES. 2 OTHERS RELAPSES, THE REMAINING ONES SHOWING NO SIGNS OF RELAPSES AND METASTASES. THE AUTHOR'S OBSERVATIONS CONFORM TO THE LATEST DATA PUBLISHED IN LITERATURE SOURCES AND BOTH BEAR PROOF TO A MORE FAVOURABLE PROGNOSIS IN EPIBULBAR MELANOBLASTOMAS, BY COMPARISON WITH DERMAL MELANOBLASTOMAS. AT THE INITIAL STAGE OF EPIBULBAR MELANOBLASTOMA THE LOCAL REMOVAL OF THE TUMOUR IS QUITE POSSIBLE.

UNCLASSIFIED

USSR

UDC: 539.5

Balter, M. A., Gol'dshteyn, L. Ya., Stennik, V. I., Kislitsyn, V. P., Kharkov

"Brittle Rupture Resistance of High-strength Steels in Various Structural States"

Kiev, Problemy Prochnosti, No 4, Apr 72, pp 76-80.

Abstract: The influence of composition, structure and mechanical properties of structural steels on brittle rupture resistance during testing of notched specimens and specimens with preliminarily applied cracks in static bending is studied. It is shown that the method of testing by static bending of specimens with a crack is quite sensitive for evaluation of the brittle strength of high-strength steels in various structural states.

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Acc. Nr: AP0102639Ref. Code: UR 0475PRIMARY SOURCE: Vrachebnoye Delo, 1970, Nr 3, pp 120-123

POSTRADIOIODINE HYPOTHYREOIDISM

A. P. Stepanenko and N. V. Romashkan (Kiev)

The characteristic of hypothyreosis developing in 50 patients of the 1000 treated with I^{131} for thyrotoxicosis are reported. Dosage of I^{131} was 2—30 mCu. In 26 hypothyreosis developed within the first year of treatment, in the rest within 3—5 years. Both sexes suffered equally. The incidence was most frequent in the fourth decade but did not substantially depend on the dose. The incidence of hypothyreosis was more frequent in patients with a short history of thyrotoxicosis not previously treated with antithyroid drugs. Late development of hypothyreosis may be explained by gradual, slow reduction of the goiter size.

REEL/FRAME
19860653

DI 2

USSR

UDC: 8.74

PAVEL'YEV, V. A., STEPANCHENKO, D. A.

"A Problem-Oriented Language and System of Generating Programs for Data Processing Jobs"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Computer Technology and Programming--collection of works), vyp. 7, Moscow, "Sov. radio", 1972, pp 50-57 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V634)

Translation: The paper describes the RPG programming system developed by IBM. The essential features of programming with the use of the RPG system are briefly described. The article is of interest both for computer programmers and for specialists involved in the development of computer software.

1/1

USSR

UDC: 535.376

GOL'DMAN, A. G., KOROL'KO, B. N., LYSENKO, S. F., and STEPANCHENKO, E. S.

"Effect of Cobalt on the Electroluminescence of ZnS-Cu and the Infrared Electroluminescence of CdS-Cu, Co"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol. 13, No. 3, September 1970, pp 464-467

Abstract: In this short article, the authors report an increase in the number of electrons in traps to a depth of 0.2-0.4 ev in the electroluminophores ZnS-Cu by the addition of small quantities of cobalt, at a concentration of 10^{-6} g-atoms per g-mole of ZnS, with a consequent increase in the intensity of their emitted phosphorescence. They found also that a somewhat larger amount of cobalt added to CdS also increased the electron concentration in the traps and led to a maximum infrared electroluminescence at 0.8μ . Their specimens of ZnS and CdS were activated by copper from a

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USSR

KAZANSKAYA, N. A., et al., Optika i Spektroskopiya, Vol 28, No 6, Jun 70, pp 1150-1158

$\frac{k_t}{\int_0}$. There was found to be a correlation between long-wave displacement of the absorption band of $Tb^{3+} 7F_6 \rightarrow 5D_4$ in the complexes, corresponding to growth of covalency of the oxygen-rare earth ion bond, and the value of $\frac{k_t}{\int_0}$. It is shown that the absence of luminescence in a number of Eu^{3+} and Sm^{3+} complexes is due to the appearance of a new long-wave absorption band -- a band of electron transfer from the organic part to a rare earth ion, with reduction of the latter to a doubly charged state.

2/2

USSR

UDC 615.324:595.421:615.281

PODBORONOV, V. M., STEPANCHOUK-RUDNIK, G. I., and GOROKHOVSKAYA, I. M.,
Laboratory of Transmitters, Division of Infections With Natural Foci, Institute
of Epidemiology and Microbiology imeni N. F. Gamaleya, Academy of Medical
Sciences USSR, Moscow

"Antibacterial Activity of the Organs and Tissues of Ixodoidea Ticks. II."

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 5,
Sep/Oct 72, pp 577-581

Abstract: It was established that the hemolymph and intestinal contents of hungry and engorged blood-sucking ticks *Alveonassus lahorensis* exerted a strong bactericidal action on *Streptococcus pyogenes*, *Corynebacterium diphtheriae*, and *Neisseria meningitidis*. The antibacterial action of the intestinal wall and of tissue homogenates (those of the tracheal complex, muscles, and nerve ganglion) of the ticks on these microorganisms was weak. The contents of the intestine of hungry ticks had a weak bactericidal activity towards *Erysipelothrix insidiosa*. The intestinal contents of hungry ticks generally exerted a stronger antibacterial action than those of engorged ticks. The hemolymph, intestinal contents, intestinal wall, and homogenates of the tracheal complex, muscles, and nerve ganglion did not exhibit an antibacterial activity towards

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USSR

PODBORONOV, V. M., et al., Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, Vol 41, No 5, Sep/Oct 72, pp 577-581

Listeria monocytogenes (three strains), *Francisella tularensis*, *Leishmania tropica minor*, *Pasteurella pseudotuberculosis*, *Bacillus subtilis*, or *Leptospira* of the strain Potoc I. The lack of antibacterial activity towards these microorganisms has a bearing on the capacity of the ticks to preserve the pathogenic microorganisms in question in their bodies and to transmit the diseases caused by them.

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42

USSR

UDC 576.895.421.098.217/218

STEPANCHENOK-RUDNIK, G. I., POTASHOVA, L. A., and GROKHOVSKAYA, I. M.,
Department of Natural Focus Infections, Institute of Epidemiology and Micro-
biology imeni N. F. Gamaleya, Academy of Medical Sciences USSR

"Nitrogen and Phosphorus Contents of Intact Blood-Sucking Ticks (Ixodoidea)
and of Some of Their Organs"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 5, 1971,
pp 584-589

Abstract: Analysis of total nitrogen and phosphorus content in adult ticks belonging to two families (Ixodidae and Argasidae), 6 genera, and 12 species showed that all the species were essentially alike in this respect, with the nitrogen and phosphorus contents ranging from 12.8 to 17.5% and 0.36 to 0.96%, respectively (except in the case of *Haemaphysalis concinna*, in which the levels were appreciably higher). The nitrogen content was somewhat higher in males. Both total nitrogen and total phosphorus increased as the tick developed from larva to nymph. Analysis of total nitrogen and total phosphorus in the intestine, salivary glands, Malpighian vessels, gonads, and testes showed that the amounts of these elements was highest in the Malpighian vessels and lowest in the intestine.

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- 16 -

USSR

UDC 576.895.42-078.2:543.545

KRASNOBAYEVA, Z. N., STEPANCHENOK-RUDNIK, G. I., and GROKHOVSKAYA, I. M.,
Vector Laboratory, Institute of Epidemiology and Microbiology imeni, N. F.
Gamaleya, Academy of Medical Sciences USSR

"Electrophoretic Study of Organ Homogenates and Hemolymph of Blood-Sucking
Ticks"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Boolezni, No 6, 1971,
pp 704-708

Abstract: Homogenates of whole argasid and ixodid ticks belonging to 8
genera and 12 species and the hemolymph of a single argasid tick species
(*Alveonatus lahorensis*) in the imago and nymph III phases were compared by
agar electrophoresis to determine the nature of the protein spectra. The
electrophoretic mobility of the protein fractions was found to differ
between adult ticks of the two families and between several genera of ixodid
ticks (*Hyalomma*, *Dermacentor*, *Rhipicephalus*). Generic and even specific
differences were evident among the argasid ticks in the nymphal stage.
Ornithodoros papillipes nymph III contained 2 protein fractions, *O. porcinus*
domesticus 3, and *A. lahorensis* 5. The electrophoretic pattern was the
same within a single species. One protein fraction was invariably found in
the larval stage in the homogenates. The hemolymph of *A. lahorensis* exhibited
differences between the imago and nymph III. There may be sex differences in
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USSR

KRASNOBAYEVA, Z. N., et al., Meditsinskaya Parazitologiya i Parazitarnyye
Beozni, No 6, 1971, pp 704-708

protein fractions in A. lahorensis and other ticks,

2/2

" 71 "

Acc. Nr:

AP0047321

Ref. Code: UR 0300

PRIMARY SOURCE: Ukrayns'kiy Biokhimichniy Zhurnal, 1970,
Vol 42, Nr 1, pp 76-80

ON THE EFFECT OF SUBFRACTION OF CARCINOMATOUS RABBIT
SERUM β -GLOBULIN ON THE GLYCOLYSIS AND RESPIRATION

N. P. Galagan, G. V. Stepanchenko, Y. I. Chernomsky

Institute of Biochemistry, Academy of Sciences, Ukrainian SSR, Kiev

Summary

The effect of blood serum proteins of healthy rabbits and animals with the transplanted Brown-Pierces carcinoma on the processes of glycolysis and respiration as well as the effect of β -globulin subfraction on them which gives a positive sedimentation test for the Brown-Pierce carcinoma were studied.

It is shown that blood serum of carcinomatous rabbits, β -globulin and one of its subfractions, which is conditionally called "protein positively reacting in the sedimentation test for carcinoma" (PPR-STC) evoke a sharp activation of the process to lactic acid formation in the extracts of the rabbit skeletal muscles. With addition of healthy rabbit sera and their β -globulin to such extracts the intensity of lactate formation in comparison with the control considerably decreases.

REEL/FRAME
19790841

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AP0047321

The results of the investigation of the effect of sera of healthy and carcinomatous rabbits on the oxygen absorption by mitochondria of the rabbit myocardium showed that the addition of healthy rabbit sera activates this process by 32% in comparison with the control and cancer serum added inhibits it almost to the same degree. β -Globulin and PPR-STC produce a greater inhibition—by 59 and 75%, respectively.

A conclusion is drawn on the presence in the blood of the animals, affected with the Brown-Pierces carcinoma, of substances capable of regulating energetic processes in tumours.

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19790842

USSR

UDC 542.61:(546.799.5+546.799.6)

CHUDINOV, E. G., PIROZHKOV, S. V., and STEPANCHIKOV, V. I.

"Studies of the Separation of Americium and Curium During the Extraction With Methyl-di-octylammonium Nitrate From Lithium Nitrate Solutions"

Leningrad, Radiokhimiya, Vol XIII, No 2, 1971, pp 208-215

Abstract: The example of extraction with methyl-di-octylammonium nitrate is used to determine the dependence of the americium and curium separation factor on the concentration of the extractant, lithium nitrate and nitric acid. The experimental procedure and results are described. Statistical methods of planning the experiments were used to find the optimal separation conditions. The data obtained made it possible not only to discover the effective extraction conditions but also to obtain information about the mechanism of extraction of trivalent actinide elements with trialkylammonium salts.

The separation of Am and Cm in the trivalent state by extraction by methyl-di-octylammonium nitrate from LiNO_3 solutions was studied as a function of variation of the concentration of methyl-di-octylammonium nitrate, LiNO_3 and the pH. Equations relating the separation factor and the distribution

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USSR

CHUDINOV, E. G., et al.; Radiokhimiya, Vol XIII, No 2, 1971, pp 208-215

coefficients to the variation of the above parameters were obtained. In the given system a relatively high Am and Cm separation factor (~ 3) is achieved, and it depends little on the methyldioctylammonium nitrate and LiNO_3 concentrations. Analysis of the regression equations from the point of view of the extraction mechanism permits reproduction of the true form of the extraction function.

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USSR

UDC 621.311.1.012.5.001.24:681.3

KRYLOV, V. A., LEGKIY, V. A., ROMANENKO, N. P., STEPANCHIKOVA, S. A.

"All-Purpose Automated Program for Digital Computer Calculations of the Short-Circuit Current by the Iteration Method of Nodal Voltages"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics -- collection of works), vyp. 25, Kiev, Naukova Dumka Press, 1970, pp 40-44 (from RZh-Eletrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye255)

Translation: An algorithm and programs for calculating all types of short-circuits on the Ural-2 digital computer with automatic alternation of versions are described. The short circuit currents are calculated at each given point by the iteration method of nodal voltages. The results of the studies of convergence of the iteration process are presented. The bibliography has 5 entries [Institute of Electrodynamics of the Ukrainian SSR Academy of Sciences]

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USSR

UDC 661.665.1

STRASHINSKAYA, L. V., and STEPANCHUK, A. N., Institute of Problems of Material Science, Academy of Sciences, Ukrainian SSR, Kiev

"Contact Interaction of Titanium Diboride with Titanium, Zirconium, and Vanadium in a Vacuum"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 6, No 6, 1970, pp 76-79

Abstract: A study was made of the behavior of titanium diboride when heated in a vacuum of about $5 \cdot 10^{-5}$ mm Hg in contact with titanium, zirconium and vanadium. The investigations were performed at 900-1700°C using compact polished specimens of the metals pressed into titanium diboride powder, on compact polished specimens of metals and titanium boride in contact, and on mixtures of powders (50 vol.% each metal and TiB_2). It is demonstrated that the temperature of the beginning of the interaction increases with increasing melting point of the metals and degree of compactness of the specimens.

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- 61 -

USSR

UDC 621.384.633.8

POLYAKOV, V.I., RODIONOV, F.V., ~~STEPANOV, V.P.~~

"Small-Size Microtron"

Zh. tekhn. fiz. (Journal Of Technical Physics), 1971, 41, No 8, pp 1667-1671
(from RZh--Elektronika i yeye primeniye, No 12, Dec 1971, Abstract No 12A254)

Translation: The description and characteristics are presented of a microtron with an energy of 5.8 Mev, operating at a 3.2-cm wavelength. The cylindrical cavity of the microtron is excited from a waveguide of 12.5 x 28.6 mm cross section through an iris coupling with the lateral side of the cavity. A magnetron with a pulse power of 240 kw is used for excitation. The pulse duration amounts to 1 microsec and the repetition frequency is 830 Hz. 6 ref. R.M.

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USSR

UDC 666.192

RUSAN, V. G., ORESECHENKO, L. P., STEPANCHUK, V. N.,

"Development of a New Brand of Optical Quartz Glass"

Leningrad, Optiko-Mekhanicheskaya Proymshlennost', No 12, December 1971,
pp 42-45

Abstract: To satisfy a recently arisen requirement for quartz glass having high transparency, it became necessary to produce an especially pure synthetic raw material, with a total admixture content not exceeding 1×10^{-5} to $1 \times 10^{-6}\%$. At an unnamed plant there was tested a number of lots of silicon dioxide, obtained by hydrolysis of the ethyl ester of orthosillicic acid. On the basis of an investigation of the optical properties of the obtained samples of glass, it was shown that the best raw material is the "Irea" brand of silicon dioxide. The melting of quartz glass directly from a "cake" of crystalline silicon dioxide improves the production process, and shortens the technological cycle of the creation of the intermediate products, without decreasing their quality. 1 figure. 4 tables. 3 references.

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USSR

UDC 621.577

STEPANENKO, A. P., Institute of Engineering Heat Physics, Academy of Sciences
UkrSSR

"Effect of Boundary Layer Bleed on the Effectiveness of Curved Ring Diffusers"

Kiev, Dopovidi Akademiy nauk Ukrainskoy RSR, Seriya A. Fiziko-tekhnichni
ta matematichni nauki, No. 9, Sep 71, pp 830-833

Abstract: The results of an experimental study of boundary layer bleed in isogonal curved ring diffusers with restricted axial dimensions are presented. The angles of expansion of the diffusers were 16, 20, 25, 30, and 35°. The study was conducted over the range of Mach numbers in the basic flow of 0.2-0.4 and of Reynolds numbers $(0.45-0.9) \cdot 10^6$ and the flow of bleed air varied from 0 up to several percent of the basic flow. The results with bleeding compared with data on flow in the diffusers without bleeding and without slits. It was established experimentally that the best effect is obtained with bleeding of the boundary layer from a slit located close to the input cross section of the diffuser. The bleed and flow rate were then a

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USSR

STEPANENKO, A. P., *Dopovidi Akademiy nauk Ukrainiskoy RSR, Seriya A. Fiziko-tekhnichni ta matematichni nauki*, No. 9, Sep 71, pp 830-833

minimum. An attempt to improve the characteristics of the diffusers by bleeding from several slits in sequence gave a poorer result, since all slits were connected with the same chamber in the simplest bleed scheme used. This was the reason for the flow of fluid from slits located at the end of the diffuser into slits located at the beginning. It was shown by calculation that one can raise the efficiency by 2-5 relative percent (at $M = 0.35$) with a large expansion angle located behind the tube. The effect should be greater at higher M . One can reduce the axial dimensions of the gas turbine unit without lowering the efficiency.

1/2 023
UNCLASSIFIED
TITLE--DETERMINATION OF UPPER CRITICAL LOADS FOR CYLINDRICAL SHELLS ON THE
BASIS OF NONLINEAR THEORY -U-
AUTHOR--(02)--DYUGACH, M.I., STEPANENKO, A.S.
COUNTRY OF INFO--USSR
PROCESSING DATE--20NOV70
SOURCE--VSESOIUZNAIA KONFERENTSIA PO PRIMENENIIU ETSV V STROITEL'NOI
MEKHANIKE, 5TH, TIFLIS, GEORGIAN SSR, NOV. 25-29, 1968. PRIKLADNAIA
DATE PUBLISHED--APR70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--CYLINDRIC SHELL STRUCTURE, BIBLIOGRAPHY, SHELL THEORY,
COMPUTER APPLICATION, METAL STRESS, NONLINEAR EQUATION
CENTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAHE--2000/1971
STEP NO--UR/0198/70/006/000/0067/0073
CIRC ACCESSION NO--AP0125560
UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--AP0125560

UNCLASSIFIED

PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF A METHOD OF CALCULATING UPPER CRITICAL LOADS FOR CYLINDRICAL SHELLS, BASED ON THE LINEARIZATION OF THE NONLINEAR EQUATIONS IN SHELL THEORY UNDER THE ASSUMPTION OF ZERO MOMENT STRESS IN THE INITIAL STATE. THE NONLINEAR STRAIN EQUATIONS ARE SOLVED BY AN ITERATION TECHNIQUE WHICH REDUCES TO THE DETERMINATION OF CORRECTIONS TO THE VALUES OF THE RESOLVING FUNCTIONS OBTAINED IN THE PRECEDING APPROXIMATION. THE CORRECTIONS ARE COMPUTED ON THE BASIS OF THE LINEARIZED SYSTEM OF EQUATIONS. IN THE CASE OF ZERO CORRECTIONS, THIS SYSTEM REDUCES TO A HOMOGENEOUS SYSTEM WHICH CONSTITUTES A SYSTEM OF STABILITY EQUATIONS WHICH TAKE THE MOMENT STRESSES IN THE SUBCRITICAL STATE INTO ACCOUNT. AS AN EXAMPLE, STABILITY PROBLEMS FOR CYLINDRICAL SHELLS ARE SOLVED ON THE BASIS OF A CORRESPONDING COMPUTER PROGRAM, USING THE METHOD OF NETWORKS. FACILITY: AKADEMIIA NAUK UKRAINSKOI SSR, INSTITUT MEKhanIKI, KIEV, UKRAINIAN SSR.

UNCLASSIFIED

Forming

USSR

UDC:621.771.6

SEVERDENKO, V. P., LOZHECHNIKOV, YE. B., BAYEK, M. A. and STEPANENKO,
A. V., Belorussian Polytechnical Institute

"Rolling of Precipitation-Hardened Materials with Imposition of Ultra-
sonic Oscillations"

Kiev, Poroshkovaya Metallurgiya, No 2, Feb 74, pp 14-16

Abstract: This article studies the possibility of intensifying the breakdown of oxides in strips rolled directly from nickel precipitation hardened with aluminum by subsequent rolling between rolls to which ultrasonic oscillations are applied. Strips 0.41 mm thick produced by direct rolling of the powder were sintered in a vacuum then subjected to 50% rolling in 8 passes in rolls with antiphase azimuthal application of oscillations. Application of the ultrasonic oscillations causes more intensive breakdown of oxide particles during the process of rolling. Determinations of microhardness on the surface and cross section of the strips at temperatures from 20-900° C showed no differences in hardness. However, testing of flat annealed specimens showed an increase in tensile strength in the materials subjected to ultrasonic oscillations.

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Acoustical and Ultrasonic

USSR

UDC 621.771

SEVERDENKO, V. P., Academician, STEPANENKO, A. V., SYCHEV, Ye. G., Belorussian Polytechnical Institute

"Effect of Ultrasound on Plastic Deformation in a Vacuum"

Minsk, Doklady Akademii nauk BSSR, No. 3, Mar 71, pp 217-219

Abstract: Studies showed that the application of ultrasonic oscillations facilitates the process of deformation in a vacuum and makes it possible to avoid adhesion of the metal being treated to the instrument. It is pointed out that high-temperature treatment of refractory metals and alloys is ordinarily accompanied by an intense interaction with gases, thus lowering their plastic properties, making deformation difficult, worsening physicochemical properties and considerably lowering the percent of yield of suitable metal. It is therefore recommended that heating, plastic deformation, and cooling of refractory materials be carried out in a vacuum; however, in such treatment there are practically no oxide films on contact surfaces and this situation leads to an increase in the coefficient of friction, a rise in specific pressures, and adhesion of the deformed metal to the instrument. To carry out hot deformation in a vacuum with

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USSR

SEVERDENKO, V. P., et al, Doklady Akademii nauk BSSR, No. 3, Mar 71, pp 217-219

the application of ultrasonic oscillations was recommended by Academician Severdenko in 1969 and an installation described here was developed to study the characteristics of this process. It consists of a sealed chamber into which is introduced through opposite windows a resonance waveguide with a hammer fastened at its end and a dye. Ultrasonic oscillations in the waveguide and hammer are excited by a magnetostriction converter. The metal to be deformed is drawn between the hammer and the dye. The wire is pressed to the hammer with a force P acting on the dye. The wire was heated with an electric current. The force of drawing T of the heated wire was measured as a function of the loading force P with and without the application of ultrasonic oscillations in a vacuum and in air. The results showed that under deformation by the ordinary method in a vacuum the drawing force is greater than in air by a factor of 1.7-1.8 and this is attributed to an increase in the forces of contact friction and the appearance of adhesion. Under deformation with the application of ultrasonic oscillations the drawing forces were practically the same in a vacuum and in air but they were considerably less in magnitude than under deformation without ultrasonics. Adhesion of the deformed metal to the instrument was absent in this case.

1/2 029 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--USE OF CONSTRUCTIVELY SIMILAR MODELS FOR INVESTIGATING THE DYNAMIC
PROPERTIES OF SPACECRAFT -U-
AUTHOR-(03)-MIKISHEV, G.N., STEPANENKO, B.G., AMINOV, V.R.
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, KOSMICHESKIYE ISSLEDOVANIYA, VOL VIII, NO 3, 1970, PP
329-340
DATE PUBLISHED-----70
SUBJECT AREAS--SPACE TECHNOLOGY, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--STRUCTURE DYNAMIC STABILITY, MODEL, SPACECRAFT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605017/E01 STEP NO--UR/0293/70/008/003/0329/0340
CIRC ACCESSION NO--AP0140747
UNCLASSIFIED

2/2 029

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140747

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITIES OF EXPERIMENTAL METHODS FOR STUDYING THE DYNAMIC PROPERTIES OF SPACE VEHICLES ARE EXAMINED; SPECIAL CONSTRUCTIVELY SIMILAR MODELS ARE ANALYZED. EMPHASIS IS ON AN ANALYSIS OF SIMILARITY CRITERIA AND ON THE PECULIARITIES INVOLVED IN DESIGNING, FABRICATING AND TESTING CONSTRUCTIVELY SIMILAR MODELS. AS AN ILLUSTRATION OF THE EFFECTIVENESS OF SUCH EXPERIMENTAL METHODS THE AUTHORS GIVE SOME RESULTS OF FREQUENCY TESTS OF A METHODOLOGICAL MODEL AND A MODEL OF THE VOSTOK CARRIER ROCKET AT A SCALE OF 1:10. A PICTURE OF THE MODEL ACCOMPANIES THE TEXT. THE MODEL WAS ABOUT 4 M LONG AND THE DIAMETER AT THE BASE WAS ABOUT 1 M. ALL COMPONENTS OF THE MODEL DETERMINING ITS ELASTIC SYSTEM WERE FABRICATED FROM THE SAME MATERIALS AS THE VOSTOK SHIP. THE ARTICLE WAS WRITTEN ON THE BASIS OF MATERIALS COLLECTED DURING INVESTIGATIONS MADE BY THE AUTHORS DURING 1958-1961. THE PAPER GIVES THE RESULTS OF CALCULATIONS ON AN ELECTRONIC COMPUTER AND TESTS OF THE REAL SHIP.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--FRACTIONATION OF GLYCOGEN ON DEAE CELLULOSE COLUMNS -U-
AUTHOR--(02)-BOBROVA, L.N., STEPANENKO, B.N.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKDA. NAUK SSSR, 1970, 191(2), 468-71
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--GLYCOGEN, CELLULOSE, FRACTIONATION
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605006/F01 STEP NO--UR/0020/70/191/002/0468/0471
CIRC ACCESSION NO--AT0139812
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0139812

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. ELUTION PROFILES WERE SHOWN FOR VARIOUSLY TREATED SPECIMENS OF GLYCOGEN. ACID AND BASIC TREATMENTS DESTROY GLYCOGEN TO SOME DEGREE. CHROMATOG. OF DEAE CELLULOSE IS AN EFFECTIVE METHOD OF FRACTIONATION OF SUCH GLYCOGEN SPECIMENS WHEN THE CL PRIME NEGATIVE FORM OF THE PACKING IS USED AND ELUTION WITH SALT SOLN. IS EMPLOYED IN THE FORM OF LIOL OF INCREASING CONC. FACILITY:
INST. BIOKHM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

UDC 621.375.001.24:621.382.32

USSR

STEPANENKO, I. P.

"Analysis of Very Simple Amplifying Cascades Based on MDS Transistors"

Moscow, V sb. Mikroelektronika (Microelectronics -- collection of works), "Sov. radio," Vol 3, 1969, pp 159-172 (from RZh-Radiotekhnika, No 4, 1970, Abstract No 4D101)

Translation: Expressions are derived and analyzed for the basic parameters of amplifying cascades which utilize two MDS type /metal dielectric semiconductor/ transistors. One of the transistors acts as the active element while the other acts as a stop resistor. A comparison was made of cascades with single type and various type channel conductivities in the case of an active and loading semiconductor transistor with saturated and unsaturated MDS-transistor regimes. A comparison was also made with one and two sources of power. It is shown that the ratio of the specific mutual conductance of the active and loading semiconductor transistors is an important parameter determining

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USSR

STEPANENKO, I. P., Mikroelektronika, "Sov. radio.", Vol 3, 1969,
pp 159-172.

the amplification factor of a cascade and that, in the presence
of one power source, its voltage uniquely determines the operating
points of the semiconductor transistor. Original article:
7 bibliographic entries. Author's abstract.

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USSR

UDC: 621.374

GAL'PERIN, Ye. I., STEPANENKO, I. P. (editors)

"Pulse Circuits Based on Semiconductor Devices. Design and Calculation"

Impul'snyye skhemy na poluprovodnikovyykh priborakh. Proektirovaniye i raschet (Cf. English above), Moscow, "Sov radio", 1970, 238 pp, ill. 75 k.
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11G171 K)

Translation: The book presents general methods of designing and calculating pulse circuits based on semiconductor devices. There are eight chapters, each of them dealing with some fundamental class of circuits — keying circuits, emitter followers, multivibrators, flip-flops, blocking oscillators, etc. N. S.

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USSR

UDC 534.322.3.083

ZAYTSEV, B. D., STEPANENKO, I. P., SHVEDOV, YE. YE.

"Methods of Measuring Low-Frequency Noise"

Moscow, Izmeritel'naya Tekhnika, No 6, Jun 1970, pp 43-46

Abstract: This article contains a review of the existing methods and means of measuring low-frequency noise in electronic instruments (the hertz and subhertz ranges). The review is based on an analysis of Soviet and foreign literature. Low-frequency noise and null drift, methods of measuring low-frequency noise, low-frequency noise generators, low-frequency band filters, and low-frequency voltmeters are considered. It is concluded that measuring noise in semiconductor devices in the infrasonic frequency range is of great scientific and practical interest. Various methods and equipment have been developed at this time for measuring the characteristics of noise at frequencies up to $5 \cdot 10^{-5}$ hertz. Measuring low-frequency noise by the method of frequency spectrum conversion (the magnetophonic technique) has not at this time been sufficiently tested. The comparative measurement techniques using analog RC-filters and an indicating voltmeter are most prospective. These methods can be used to measure noise in the frequency range from a few hertz to frequencies on the order of 10^{-5} hertz. Descriptive diagrams, graphs and mathematical descriptions are used to illustrate and explain the various techniques and equipment.

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Power, Turbine, Engine, Pump

USSR

UDC: 62-235.5

MALYUTIN, P. V., GUNYAYEV, G. M., VORONTSOV, I. A., RUMYANTSEV, A. F.,
BARDINA, N. P., STEPANENKO, N. D., KARIMBAYEV, T. D., KISELEV, Yu. A.,
GORSHKOV, L. A.

"A Turbine Blade"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki,
No 21, Jul 72, Author's Certificate No 344168, Division F, filed 31 Aug 70,
published 7 Jul 72, p 135

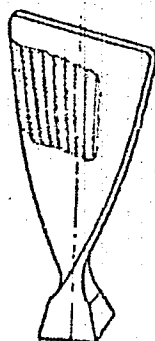
Translation: This Author's Certificate introduces a turbine blade for an axial compressor made of a laminar composition material. As a distinguishing feature of the patent, the rigidity and vibration strength are increased by making the blade from alternating layers of glass and carbon fiber fillers oriented relative to the longitudinal axis of the blade, 34-45% of the fiberglass-filled layers being oriented at angles from 0 to $\pm 15^\circ$, while 5-15% of the fiberglass-filled layers are oriented at angles from ± 75 to 90° , 20-30% of the carbon fiber-filled layers are oriented at angles from 0 to $\pm 15^\circ$, and 20-30% of the carbon fiber-filled layers are oriented at angles from ± 45 to 160° .

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USSR

MALYUTIN, P. V. et al., USSR Author's Certificate No 344168



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USSR

UDC: 621.43.011:533+621.5:533

BEKURYAYEV, V. I., BUKHMAN, Ya. Z., STEPANENKO, O. A.

"High-Velocity Turbulent Stream Produced by a Jet Engine. Comparing Theory With Experiment"

Tr. Leningr. gidrometeorol. in-ta (Works of the Leningrad Hydrometeorological Institute), 1972, vyp. 45, pp 73-76 (from RZh-Mekhanika, No 7, Jul. 72, Abstract No 7B407)

Translation: The theory of turbulent jets propagating in a stratified atmosphere is compared with the results of observations of the propagation of a gas jet produced by the RD-3M turbojet engine. The observations were made at the Sibay Mine Quarry where extensive work is being done on the use of turbojet engines for creating artificial wind in the quarry. The results of the comparison are given in the form of graphs showing the experimental and theoretical trajectories of the axis or contour of the jet. The comparison shows satisfactory agreement between theory and experiment. Authors' abstract.

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1/2 009
UNCLASSIFIED
TITLE--THIN LAYER CHROMATOGRAPHY OF OPIUM ALKALOIDS PERFORMED ON A
BUFFERED SILICA GEL LAYER -U-
AUTHOR--(02)-STEPANENKO, O.B., SHEMYAKIN, F.M.
COUNTRY OF INFO--USSR
SOURCE--FARMALSIYA (MOSCOW) 1970, 19(1), 37-40
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--THIN LAYER CHROMATOGRAPHY, ALKALOID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0135
CIRC ACCESSION NO--AP0114531
STEP NO--UR/0466/70/019/001/0037/0040
UNCLASSIFIED

2/2 009
CIRC ACCESSION NO--AP0114531
ABSTRACT/EXTRACT--(U) GP-0- UNCLASSIFIED
PROCESSING DATE--16OCT70
THEBAIN, PAPAVERINE, AND NARCOTINE WERE SEPD. BY THIN LAYER CHROMATOG.
ON SID SUB2 BUFFERED BY 0.1M NA SUB2 CO SUB3 TO PH 11. THE
CHROMATOGRAMS WERE DEVELOPED WITH CHCL SUB3-C SUB4 H SUB6-ACETONE-MEON
19 IS TO 7 IS TO 2 IS TO 21 AND WERE SPRAYED WITH DRAGENDORFF'S REAGENT.
THE R SUBF VALUES OF THE ALKALOIDS WERE, RESP.: 0.11, 0.24, 0.41,
0.70, AND 0.78.
FACILITY: MOSK. MED. INST. IM. SECHENOVA,
MOSCOW, USSR.

UNCLASSIFIED

"APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203130008-2

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--RADIANT CONDUCTIVE HEAT TRANSFER IN A PLANAR LAYER OF AMMONIA -U-

AUTHOR--(02)--RUBTSOV, N.A., STEPANENKO, P.I.

COUNTRY OF INFO--USSR

SOURCE--INZH.--FIZ. ZH. 1970, 18(2), 216-23

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT TRANSFER, AMMONIA, TEMPERATURE GRADIENT, THERMAL CONDUCTIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--1996/1834

CIRC ACCESSION NO--AP0118798

STEP NO--UR/0170/70/018/002/0216/0223

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R002203130008-2"

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0118798

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN APPROXN. OF RADIANT CONDUCTIVE HEAT TRANSFER BY A LAYER OF CONDUCTING GAS IS DESCRIBED. THE EXPTL. EQUIPMENT CONSISTED OF 2 METAL PLATES PARALLEL TO EACH OTHER AND FORMING THE BED BOUNDARY, THE TOP ONE WAS HEATED, THE BOTTOM ONE WAS COOLED, THE DISTANCE BETWEEN THEM CAN BE ADJUSTED TO CONTROL THE COND. ZONE. PRESSURES OF 40 MM HG TO 2 ATM. WERE EXAMD. FOR NH SUB3 GAS. EQUATIONS ARE GIVEN FOR THE TEMP. GRADIENT, FOR SEPD. RADIATION AND CONDUCTION FLUXES, FOR THE COMBINED HEAT FLUX; THE 1ST ONE WAS ALSO TESTED EXPTL. AND VERY GOOD AGREEMENT WAS OBTAINED. THE RELATION IS GIVEN FOR THE PREDICTION OF AN EFFECTIVE THERMAL COND. WHICH WAS FOUND TO BE CRIT. FACILITY: INST. TEPLOFIZ., NOVOSIBIRSK, USSR.

UNCLASSIFIED

AP0047633

Abstracting Service:
CHEMICAL ABST. 5/70

Ref. Code:

4R0080

104512w Solubility in ammonium nitrate-ammonium mono-
hydrogen phosphate-water and ammonium monohydrogen
phosphate-ammonium carbonate-water systems at 10°.
Belyaev, I. N.; Sigida, N. P.; Stepanenko, T. D.
(USSR). Zh. Prikl. Khim. (Leningrad) 1970, 43(1), 178-81
(Russ). Soly. diagrams of NH_4NO_3 - $(\text{NH}_4)_2\text{HPO}_4$ - H_2O and
 $(\text{NH}_4)_2\text{HPO}_4$ - $(\text{NH}_4)_2\text{CO}_3$ - H_2O systems at 10° are constructed.
Both systems are of eutonic type, having eutonic point shifted
toward the region of the most-sol. components, NH_4NO_3 and
 $(\text{NH}_4)_2\text{HPO}_4$, resp. HMJR

REEL/FRA
19791205

187K

USSR

MOROZOV, A. A., SERKIN, A. F. and STEPANENKO, V. N.

"Structural Analysis of Transient Processes"

Metody i Sistemy Obrab. Eksperim. Inform. [Methods and Systems for Processing of Experimental Information -- Collection of Works], Kiev, 1972, pp 42-48 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V210)

Translation: In order to study the properties of the transient processes of certain systems resulting from random perturbations, it is suggested that structural connection functions and structural connection matrices (in the vector case) be introduced. For example, the structural connection function of two processes $x_1(t)$ and $x_2(t)$, $0 \leq t \leq T$, is fixed by the formula

$$r_{1,2}(T) = \frac{\int_0^T dt \int_0^{T-t} a_1(t, \tau) q_2(t, \tau) d\tau}{\int_0^T dt \int_0^{T-t} p(t, \tau) d\tau}$$

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USSR

MOROZOV, A. A., SERKIN, A. F. and STEPANENKO, V. N., Metody i Sistemy
Obrab. Eksperim. Inform., Kiev, 1972, pp 42-48

where $q_i(t, \tau) = \text{sign}[x_i(t + \tau) - x_i(t)]$, $i = 1, 2$, but $p(t, \tau)$ is a
certain weight function, $0 \leq p(t, \tau) \leq 1$.

Comparison of function $r_{1,2}(T)$ and the matrices composed from
such functions with standard functions and matrices allows, in a certain
sense, analysis of the transient processes generated by random pertur-
bations.

R. Liptser

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